M4545
MANUAL

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

M454536739

FACILITY: US ECOLOGY DETROIT (SOUTH)		**SRN / ID:** M4545
LOCATION: 1923 FREDERICK, DETROIT		**DISTRICT:** Detroit
CITY: DETROIT		**COUNTY:** WAYNE
CONTACT: Krystal Brown , EHS Manager		**ACTIVITY DATE:** 08/19/2016
STAFF: Jonathan Lamb	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled Inspection, FY 2016		
RESOLVED COMPLAINTS:		

DATES OF INSPECTION: July 13, 2016, and August 19, 2016
INSPECTED BY: Jonathan Lamb, MDEQ/AQD
PERSONNEL PRESENT: Krystal Brown, EHS Manager; Raymond Landsburg, General Manager; Chuck Zuerner, Operations Manager - Wastewater; Paul Haratyk, Operations Manager – Chem Fix
FACILITY PHONE NUMBER: (313) 923-0080
FACILITY FAX NUMBER: (313) 923-3375
FACILITY WEBSITE: www.usecology.com
SAFETY EQUIPMENT: safety glasses, hard hat, steel-toed boots, safety vest

FACILITY BACKGROUND:

US Ecology Detroit - South is a waste processing facility specializing in the treatment, stabilization, and solidification of various types of industrial wastes, including both hazardous and nonhazardous liquids, solids, sludges, soils, and debris. The facility is licensed as a Hazardous Waste Management (Part 111) and Solid Waste Management (Part 115) facility.

This facility was previously owned and operated EQ, until the site was acquired by US Ecology in June 2014. The facility is located in a mixed industrial/residential area of Detroit near the I-75/I-94 interchange, across from Detroit Renewable Power. The facility receives waste from 7 AM to 5 PM, Monday through Saturday, though processing may occur 24 hours a day, 7 days per week. There are currently around 100 employees at this site.

US Ecology, Inc. is a waste management company based in Boise, Idaho which has facilities throughout North America. The company expanded into Michigan within the past few years by purchasing Dynecol in Detroit in 2012 and then three EQ-owned sites in Detroit, Belleville, and Romulus in 2014.

COMPLAINT/COMPLIANCE HISTORY:

The facility has a long history of odor issues dating back to 1995. Since the last inspection on August 27, 2015, the facility has been issued three Violation Notices, dated October 12, 2015, July 21, 2016, and August 3, 2016, for emitting nuisance odors in violation of Rule 901. These odors are suspected to be associated with the waste stabilization/solidification process. At the time of inspection, the outstanding violation notices were unresolved and the facility was considered to be in noncompliance with Rule 901.

Note: When investigating complaints alleging odors from EQ Detroit, the inspector should also consider Greater Detroit Resource Recycling as a possible source, especially if the complaint is non-descript, or if the odors are described as "rotting" or "garbage". Both sources have potential for off-site odors; however, the odor from each source is distinctly different in character.

PROCESS DESCRIPTION AND EQUIPMENT:

Wastes are received in both bulk (via tankers) and drums (via truck or railcar). Each tanker is weighed on the truck scale, and every waste is sampled and analyzed ("fingerprint analysis") upon arrival to

make sure it matches the description on the manifest before it can be accepted for treatment. Once approved, the waste material will be transferred to the appropriate process. Drums are unloaded at the ChemFix receiving dock while tankers are pumped directly to treatment or storage tanks.

There are two main waste treatment operations at the plant: ChemPre, where oily and non-oily wastes are treated and processed, and ChemFix, where waste stabilization/solidification is performed.

ChemPre:

Chemical precipitation is performed on non-oily wastewater (both hazardous and nonhazardous) in the Main Building. There are eight tanks located in the Main Building, ranging from 15,000 to 20,000 gallons, used to hold and treat the liquid waste containing some solids. The tanks are labeled T-201 through T-206 and T-305 and T-306, and are loaded directly from tankers with incoming waste. For the chemical precipitation process, additives are put into the tanks and the contents are agitated (using eductors) to mix, causing the solids to precipitate from the liquid, creating a sludge. This sludge is transferred and stored in two 17,000-gallon tanks (T-24 and T-25) for nonhazardous waste or to a 17,000 gallon tank (T-208) for hazardous waste. The waste is then passed through one of two filter presses (designated for hazardous or nonhazardous waste) to separate the liquid and solid waste. The hazardous solids are sent off-site to another company (Envirosafe in Ohio) for further treatment and disposal, while the nonhazardous solids are treated in the ChemFix Building. The filtered liquid waste is stored in two 20,000-gallon tanks (T-1 and T-2) located outside the west side of the Main Building. This waste is then tested to determine if it needs further treatment; if not, it is then discharged to the city sewer system. The filter presses are exempt from permit requirements under R.285(m)(i) and tanks T-1 and T-2 are exempt per R.284(i).

There are also tanks used to store and treat light wastewaters, including leachate, which do not contain solids. Four of these tanks are 78,000 gallons and are designated as T-19, T-20, T-21, and T-22, and are the four big blue tanks located in front (east) of the oil processing area. Two 78,000 gallon tanks (T-3 and T-4) are also used as holding tanks for light wastewater. These tanks are located behind (west of) the Main Building next to tanks T-1 and T-2. Tanks T-3, T-4, and tanks T-19 through T-22 are not permitted. Based on discussions between AQD and consultants for EQ-Detroit, AQD has accepted EQ-Detroit's determination that these tanks are exempt from permitting per R.285 (m)(i) because of the minimal amount of VOCs in the waste steam and the purpose of the tanks is for storage and settling, not to treat VOCs.

The additives and reagents used in the chemical precipitation process are stored in various tanks, which are exempt under R.284(h) and R.284(i). These tanks are labeled A-1, CST-1 through CST-5, and C-1. The tanks range in size from 4,150 to 6,000 gallons, except for C-1, which is 14,000 gallons.

Inside the Main Building, there are two 8,000-gallon acid neutralization tanks (T-301 and T-302) and two 6,500-gallon acid storage tanks (T-303 and T-304) located in the "Acid Room". These tanks are considered part of the ChemFix process, not ChemPre. Wastes stored in these tanks are disposed of either in the waste stabilization process or sent off-site for deep well disposal. Tanks T-301 and T-302 are exempt from permitting under R. 284(i) and tanks T-303 and T-304 are exempt under R.284(h).

The oil recovery process is used to reclaim fuel oil from oily wastewaters and waste oil. There are six primary treatment tanks (FGPRIMARYTANKS) located outside which are used for the treatment of oily wastewaters (three 150,000-gallon tanks and three 100,000-gallon tanks). The primary tanks are designated T-13 through T-18 and are also referred to as the "6-Pack". Each tank is heated and holds a different type of oily wastewater, including rag oil, decanted water, and lighter oil.

There are four 15,000-gallon secondary treatment tanks (FGSECONDARYTANKS) located inside the Oil Treatment Room which are used to treat waste oil and synthetic coolants. The secondary tanks

are designated as T-120 through T-123. Each tank is heated and equipped with an impeller (for agitation) and a temperature gauge, which can be checked from a central computer in the Oil Treatment Room. The separation of oil during secondary treatment can take from three hours to three days.

Note: the primary and secondary treatment tanks are separate and individual operations and not part of a sequential process as the terms "primary" and "secondary" normally infer for wastewater treatment.

There are seven 22,000-gallon non-permitted tanks used for storage only. Of the seven non-permitted tanks, five (T-111 through T-115) are used to store pre-treated oily wastes, while two (T-116 and T-117) are used to store treated outbound oil (product). Oil product includes fuel-grade oil and rag oil.

Emissions from all of the tanks are controlled by a 5000 cfm scrubber. The scrubber is equipped with a monitor which shows pH, flow rate, ORP (oxidation-reduction potential), and change in pressure. These operating parameters are checked and recorded on a daily basis. There is also a second scrubber on-site which is not currently in use.

ChemFix:

Waste stabilization/solidification is performed in the ChemFix Building. The most common waste streams are metals and nonhazardous wastes. There are six vaults (below-ground "pits") ranging in capacity from 150 to 460 cubic yards in which wastes are processed. Waste type dictates pre-treatment prior to solidification. Acids and bases are neutralized, while characteristic wastes are treated to eliminate the hazardous characteristic before solidification. These wastes are then allowed to be disposed of as nonhazardous wastes. Listed wastes, however, are simply solidified and then disposed of as hazardous waste. Some sludge waste is also stored in a 144,500-gallon underground storage tank (T-901) located underneath the baghouse. This waste is screw conveyed directly to the vaults inside the ChemFix Building for treatment.

During processing, compatible wastes are dumped into the vault, treated (if necessary), and then mixed with a solidification agent (fly ash, cement kiln dust, or hazardous waste dust) to solidify the material in the vault. There are five 5,500 cubic foot silos outside the south side of the ChemFix building. Four of the silos EUSILO1 through EUSILO4) store cement kiln dust and lime, while the fifth (EUSILO5) holds hazardous waste dust, which is steel mill baghouse dust. Once the solidification agent is added, the contents of the vault are then mixed and allowed to cure overnight before the waste is dug out using a front-end loader and put into a trailer. The stabilized wastes are then tested to make sure they meet federal disposal requirements, and are then sent to landfill (currently, nonhazardous wastes are taken to Arbor Hills in Northville and hazardous wastes are sent to US Ecology Belleville). Waste streams not treated at this site include biological, radioactive, and oxygen-generating wastes.

Particulate emissions from the ChemFix building are controlled by an 180,000 cfm baghouse, which was installed in July 2006. Particulate wastes collected in the baghouse are then used in the ChemFix process, so no off-site disposal is required. Since the last inspection in August 2015, the facility has added a "puffer system" to the baghouse to prevent blockage in the baghouse. The facility has also added a deodorizing system, which can add odor neutralizer from a 55-gallon drum directly to the baghouse exhaust stacks in case any wastes processed are causing odor issues.

Outside the east side of the ChemFix building is the drum receiving and storage area. The drums are segregated according to waste type, such as acids, flammable liquids, non-hazardous, corrosives and toxics, oils, cyanide, caustics, and characteristic metals. Flammable liquids, corrosives, and toxics are not treated at this site, but are temporarily stored here before being shipped out for off-site treatment and disposal. Drum waste which is able to be treated on-site are dumped into the vaults of the

ChemFix building.

Lab De-Pack/Transfer and Processing:

The Lab De-Pack Building, now known as "Detroit Service Station", is located at the northeast corner of the property (near Ferry St. and St. Aubin St.) and is considered a separate entity from the Detroit (South) facility. This area is used for storage and de-packaging of small-quantity wastes (including some unknown wastes), and household hazardous waste drop-off. These wastes are consolidated and shipped off for disposal at another site. Outside the Lab De-Pack Building is the Transfer and Processing Area, where drums and other containers are stored on a short-term basis. This area is permitted through WHMD for 10-day storage. EQ has submitted a demonstration which shows that the Lab De-Pack and Transfer and Processing areas are exempt from permitting via R.290. Records are maintained to show that emissions are below R.290 limits and all materials processed have screening levels above the threshold limits allowed in R.290. The exemption demonstration shows VOC emissions to be less than 10 pounds per year.

APPLICABLE RULES/ PERMIT CONDITIONS:

Permit to Install No. 269-04E was issued on August 21, 2014, which was a modification to PTI No. 269-04D to remove conditions relating to a centrifuge which was never installed. This permit kept the limits on VOCs and HAPs which maintained the facility's synthetic minor status, allowing it to opt out of Title V permitting requirements.

PTI No. 269-04E; Special Conditions:

EUTREATMENT – Enclosed waste stabilization/solidification operation which processes hazardous and nonhazardous off-site waste using chemical stabilization and controlled by a baghouse.

I. Emission Limits

Pollutant	Limit	Reported Emissions	Compliance Status
1. PM	0.002 gr/dscf	0.0005 gr/dscf[1]	IN COMPLIANCE
2. PM	4.3 pph	0.75 pph[1]	IN COMPLIANCE
3. VOC	25.0 pph	7.32 pph[2]	IN COMPLIANCE

[1] Stack testing on November 8 and 9, 2006, showed the particulate emission rates to be 0.0005 grains/dscf and 0.75 lb/hr.

[2] Stack testing on June 26, 2007, measured the VOC emission rate to be 7.32 lb/hr.

II. Material Limits

1. IN COMPLIANCE. Facility does not process hazardous liquid waste with a VOC content greater than 500 ppm. Facility monitors and records the VOC content of all hazardous liquid wastes prior to processing to demonstrate compliance with this condition.
2. IN COMPLIANCE. Facility does not process nonhazardous liquid waste with a VOC content greater than 5.0%, as received. Facility monitors and records the VOC content of all nonhazardous liquid wastes prior to processing to demonstrate compliance with this condition.
3. IN COMPLIANCE. Facility does not process any waste streams in EUTREATMENT which contain any of the compounds listed in a. through x. of this condition in excess of 500 ppm. Facility monitors and records the concentrations of all components in every waste stream received and processed in EUTREATMENT to demonstrate compliance with this condition.

III. Process/Operational Restrictions

1. IN COMPLIANCE. Facility implements and maintains an approved fugitive dust plan. A wet sweeper is used on site daily, weather permitting. During the inspection, no issues with fugitive dust were observed.

2. IN COMPLIANCE. Facility keeps no more than one bay door to EUTREATMENT open during normal operation, except during unloading, at which time two bay doors may be open. During the inspection, I observed no more than one bay door open at a time.
3. IN COMPLIANCE. Facility maintains negative pressure in EUTREATMENT during normal operation. Based on my visible observations, EUTREATMENT was under negative pressure at the time of inspection and the facility. Negative static pressure testing performed on November 27, 2015, demonstrated compliance at the time of testing.

IV. Design/Equipment Parameters

1. IN COMPLIANCE. Facility only operates EUTREATMENT when the baghouse is maintained and operated in a satisfactory manner. I checked the baghouse operating parameters during the inspection and the baghouse appeared to be operating properly at that time. I also did not observe any visual emissions coming from the baghouse stack. Per the Preventative Maintenance Plan, the facility performs inspections of the baghouse weekly with daily checks for visible emissions.

V. Testing/Sampling

1. IN COMPLIANCE. Annual testing to demonstrate negative pressure in EUTREATMENT was performed on November 27, 2015. The testing verified that the building was under negative pressure.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Facility records and maintains the following records in an acceptable manner;
a. VOC content of each waste stream received for treatment in EUTREATMENT;
b. Calendar month summaries of the VOCs for liquid waste received for treatment;
c. Daily and cumulative monthly total records of the type (by waste code) and amount of waste processed in EUTREATMENT;
d. Annual determination of the negative pressure for the EUTREATMENT building using smoke tubes;
e. Calculations of VOC emission rates from EUTREATMENT for each month and 12-month rolling time period, using the method in Appendix A or an alternate method approved by the District Supervisor. After discussions between US Ecology and the AQD Detroit Office, AQD has accepted US Ecology's alternate methodology for calculating and reporting VOC emissions for the EUTREATMENT process. This alternate method may be reevaluated if it is later determined to be insufficient in accurately reporting VOC emissions.

VIII. Stack/Vent Restrictions
1 and 2. IN COMPLIANCE. According to facility documentation and visible observation, baghouse stacks SVTREAT1 and SVTREAT2 appear to meet permit specifications.

FGOILRECOVERY – Oil recovery process controlled by a packed bed scrubber. Associated Emission Unit IDs: EUOILRECOVERY, FGPRIMARYTANKS, and FGSECONDARYTANKS

II. Material Limits

1. IN COMPLIANCE. Highest 12-month rolling total of oily waste processed in FGPRIMARYTANKS was 10,286,161 gallons in the 12-month rolling time period ending in July 2015, below the permit limit of 73,000,000 gallons per 12-month rolling time period. 12-month rolling total in June 2016 was 5,434,403 gallons.
2. IN COMPLIANCE. Highest 12-month rolling total of oily waste processed in FGSECONDARYTANKS was 2,880,125 gallons in the 12-month rolling time period ending in July 2015, below the permit limit of 36,500,000 gallons per 12-month rolling time period. 12-month rolling total in June 2016 was 1,521,633 gallons.

III. Process/Operational Restrictions

1. IN COMPLIANCE. FGPRIMARYTANKS are kept below 190 F. Primary tanks are not heated. A review of daily tank logs show temperatures are closer to ambient, well below the permit limit of 190 F.
2. IN COMPLIANCE. FGSECONDARYTANKS are kept below 210 F. A review of daily tank logs show temperatures are closer to ambient, well below the permit limit of 210 F.

IV. Design/Equipment Parameters

1. IN COMPLIANCE. Tanks in FGOILRECOVERY are controlled by a scrubber, and the scrubber is properly operated and maintained. At the time of inspection, the scrubber operating parameters were in compliance with the following permit specifications:
a. pH maintained at 5.0 or higher; ph was 7.1 during the inspection.
b. ORP maintained at 350 mV or higher; ORP was 503 mV during the inspection.
c. Flow rate maintained between 100-135 gpm; flow rate was 125.8 gpm during the inspection.
d. Pressure drop maintained between 4" and 6.5" wg; pressure drop was 4.2" wg during the inspection.

V. Testing/Sampling

1. NOT EVALUATED. Odor testing has not been requested by AQD. However, due to ongoing odor complaints and verified odors in violation of Rule 901, AQD may request testing prior to next inspection if odor complaints continue.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Temperatures of the tanks in FGOILRECOVERY are monitored continuously and recorded periodically throughout the day.
2. IN COMPLIANCE. Devices to monitor scrubber operating parameters is installed and maintained in a satisfactory manner.
3. IN COMPLIANCE. The following records are maintained in a format acceptable to AQD:
a. Daily records of oil/water waste processed in FGPRIMARYTANKS and FGSECONDARYTANKS.
b. Temperature of the tanks in FGOILRECOVERY is recorded at least once per day.
c. Date and amount of additions to the scrubber liquid.
d. Scrubber operating parameters (pH, ORP, flow rate, and pressure drop) are recorded at least once per day.

VII. Stack/Vent Restrictions

1. IN COMPLIANCE. According to facility documentation and visual observation, scrubber stack SVSCRUBBER appears to meet permit specifications.

FGFACILITY – All process equipment at the facility, including equipment covered by other permits, grandfathered equipment, and exempt equipment. Associated Emission Unit IDs: EUTREATMENT, EUOILRECOVERY, EUSILO1, EUSILO2, EUSILO3, EUSILO4, EUSILO5, FGPRIMARY TANKS, and FGSECONDARYTANKS.

I. Emission Limits

Pollutant	Limit	Highest Reported Emissions	Compliance Status
1. VOC	89.9 tons per 12-month rolling time period	35.4 tons for 12-month rolling time period ending April 2016; 30.3 tons for 12-month rolling time period ending July 2016	IN COMPLIANCE
2. Individual HAP	Less than 9 tons per 12-month rolling time period	2.98 tons for 12-month rolling time period ending June	IN COMPLIANCE[1]

		2016[1]	
3. Total HAPs	Less than 22.5 tons per 12-month rolling time period	2.98 tons for 12-month rolling time period ending June 2016	IN COMPLIANCE

[1]Since the highest total HAPs reported were below the 9 ton per 12-month rolling time period limit for individual HAPs, this was determined to be sufficient to demonstrate compliance with this permit limit.

III. Process/Operational Restrictions

1. IN COMPLIANCE. Malfunction Abatement Plan (MAP) was submitted to AQD, and is maintained and implemented by the facility.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Monthly and 12-month rolling time period calculations of VOC and HAP emissions from FGFACILITY are maintained, as required. After discussions between US Ecology and the AQD Detroit Office, AQD has accepted US Ecology's alternate methodology for calculating and reporting VOC and HAP emissions for FGFACILITY. This alternate method may be reevaluated if it is later determined to be insufficient in accurately reporting VOC and HAP emissions.

FINAL COMPLIANCE DETERMINATION:

At the time of inspection, US Ecology Detroit – South was determined to be in compliance with the Special Conditions of PTI No. 269-04E. However, the facility was determined to be in noncompliance with Rule 901 and General Condition 6 of PTI No. 269-04E for unresolved and ongoing violations of Rule 901.

NAME _____ DATE 9-29-16 SUPERVISOR _____